CIGARETTE TESTING METHODOLOGY

- **MASSACHUSETTS REGULATION**
  - TECHNICAL OVERVIEW - 1997
  - RESOURCE IMPACT - 1997
  - IMPLICATIONS FOR 1998 AND BEYOND

DOC CODE: P0621

PM3000376231

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

MASSACHUSETTS REGULATION

- BRAND FAMILY IDENTIFICATION
- SAMPLING PROTOCOL
- MODIFIED FTC METHODOLOGY - NICOTINE DELIVERY
- PERCENT FILTER VENTILATION
- SMOKE pH
- TOTAL NICOTINE CONTENT - FILLER
- REPORTING DATE - DEC. 15, 1997

DOC CODE: P0621

PM3000376232

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

BRAND FAMILY IDENTIFICATION

◆ MAXWELL REPORT

- CRITERIA IS > 5% NATIONAL MARKET SHARE (MS)
- PUBLISHED QUARTERLY & ANNUALLY

	MARLBORO	BASIC
ANNUAL MS 1996	32.3%	4.8%
1ST QTR MS 1997	33.3%	5.0%
2ND QTR MS 1997	34.5%	4.9%

◆ NUMBER OF PACKINGS

- MARLBORO - 20

DOC CODE: P0621

PM3000376233

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

SAMPLING PROTOCOL

- PURCHASE IN MASSACHUESTTS
- 4 PACKS FROM 5 STORES IN 5 COUNTIES
- HALF MAILED TO THE STATE DEPARTMENT OF HEALTH FROM THE LOCATION OF PURCHASE
- 2 WEEK PICKUP WINDOW
- SALES FORCE TO PICKUP IN 1997

DOC CODE: P0621

PM3000376234

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

TOTAL NICOTINE CONTENT - FILLER

- SMOKELESS TOBACCO PRODUCT PROCEDURE
- 100 GRAMS OF EQUILIBRATED TOBACCO
- GROUND IN ROBOT COUPE TO OBTAIN HOMOGENEOUS SAMPLE
- EXTRACTED 1.0 GRAM OF SAMPLE
- CAPILLARY GC ANALYSIS FOR NICOTINE DETERMINATION
- REPORTED AS MG NICOTINE/CIG.

DOC CODE: P0621

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

TOTAL NICOTINE CONTENT - FILLER

FILLER	NICOTINE mg/cig	
SAMPLE	MA METHOD	PM METHOD
2R1F	13.74	13.64
1R3F	13.33	13.57
1R4F	13.77	14.39
1R5F	9.14	9.46

DOC CODE: P0621

PM3000376236

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

PERCENT FILTER VENTILATION

- **PROPOSED FDT - 232 INSTRUMENT**
  - FIDUS DILUTION TESTER
  - RS232 PORT
- **VENTILATION WITHOUT BLOCKING**
- **AVERAGE OF 100 CIGARETTES**

DOC CODE: P0621

PM3000376237

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

PERCENT FILTER VENTILATION

◆ DATA

	% VENTILATION FOR SAMPLES			
FILTER	2R1F	1R3F	1R4F	1R5F
NON-TAPED	1	3	31	70
50% TAPED	3	3	18	49
100% TAPED	3	2	1	2

DOC CODE: P0621

PM3000376238

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

MODIFIED FTC METHODOLOGY - NICOTINE DELIVERY

- **EQUILIBRATED PER ISO CONDITIONS**
- **PUFF PARAMETERS**
  - 45 mL PUFF VOLUME
  - 30 SEC. PUFF INTERVAL
  - 2 SEC. PUFF DURATION
- **50% VENTILATION HOLES BLOCKED**
  - SCOTCH BRAND # 600 TRANSPARENT TAPE
  - COVERS 50% OF THE CIRCUMFERENCE FROM THE END OF THE FILTER TO THE TIPPING OVERWRAP SEAM
- **100 CIGARETTES**

DOC CODE: P0621

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

MODIFIED FTC METHODOLOGY - NICOTINE DELIVERY

	NICOTINE mg/cig (TAR mg/cig)			
METHOD	2R1F	1R3F	1R4F	1R5F
FTC (35/60/2)	1.51 (21.5)	1.17 (15.6)	0.78 (9.0)	0.16 (1.6)
MA (45/30/2)	2.58 (35.2)	2.25 (29.9)	1.54 (20.1)	0.66 (9.1)

DOC CODE: P0621

PM3000376240

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

SMOKE pH

- **REGULATION REFERENCES A METHOD WHICH:**
  - IS NOT VALIDATED
  - CONTAINS EQUIPMENT WHICH IS NOT COMMERCIALLY AVAILABLE
  - CANNOT BE RUN ACCORDING TO THE REQUIRED MASSACHUSETTS MODIFIED PUFF PARAMETERS

DOC CODE: P0621

PM3000376241

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

SMOKE pH

- SIMILAR TO PRD & BATTELLE METHOD
- IDENTICAL PUFF PARAMETERS TO NICOTINE DELIVERY SECTION
- FILTRONA SMOKING MACHINE
- TRAPPING MAINSTREAM SMOKE IN WATER
- 2 CIGARETTES PER MEASURE
- 3 MEASUREMENTS
- MEASURE pH OF IMPINGER SOLUTION AND TPM PAD

DOC CODE: P0621

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

TECHNICAL IMPACT

- **THE REGULATION MAY BE OPEN TO DIFFERENT INTERPRETATIONS**
  - MODIFIED FTC SMOKING METHODOLOGY
    - TAPE WIDTH
  - SMOKE pH
    - DIFFERENT METHODS
- **NON-VALIDATED METHODS**
  - TOTAL NICOTINE CONTENT - FILLER
  - NICOTINE DELIVERY WITH BLOCKED VENTILATION
  - SMOKE pH
- **NO COLLABORATIVE STUDIES**

DOC CODE: P0621

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

TECHNICAL IMPACT

- **EQUIPMENT FOR REFERENCED METHOD IS NOT COMMERCIALLY AVAILABLE - SMOKE pH**
- **CRITERIA FOR EQUIPMENT COMPARISONS IS UNKNOWN**
  - SMOKE pH IMPINGER APPARATUS
  - VENTILATION TESTER
- **SMOKING MACHINE IMPACT**
  - 45mL PUFF VOLUME/30 SEC. INTERVAL/2 SEC. PUFF DURATION
    - BORGWALDT ROTARY MACHINE
      - REDUCTION OF CIGS. FROM 20 TO 10 CIGS. PER RUN

DOC CODE: P0621

PM3000376244

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

RESOURCE IMPACT - 1997

- SAMPLE PICKUP - 2 WEEKS - $10K
- FILLER ANALYSIS -
- MODIFIED FTC METHODOLOGY
- SMOKE pH

DOC CODE: P0621

PM3000376245

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

1998 AND BEYOND

- **BRANDS**
  - DECIDE ON WHICH MAXWELL REPORT TO USE
  - > 1.5% MARKET SHARE
    - ~ 75 PACKINGS
      - MARLBORO
      - BASIC
      - BENSON & HEDGES
      - VIRGINIA SLIMS
      - MERIT

DOC CODE: P0621

PM3000376246

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001

1998 AND BEYOND

- **SAMPLE PICKUP**
- **METHOD VALIDATION**
  - TAPE FOR BLOCKING VENTILATION (REDUCED CIRCUMFERENCE CIGARETTES)
- **CONTRACT LAB**
- **≤1.5% MARKET SHARE USE A MULTIPLIER BASED ON FTC DATA TO ESTIMATE NICOTINE DELIVERY**

DOC CODE: P0621

PM3000376247

Source: https://www.industrydocuments.ucsf.edu/docs/qpwl0001